Remarks

Reconsideration of the application is requested.

Claims 1-2, 4-10, 20-23, 25-44, 46-52, 62-65, and 67-84 have been rejected. Claims 12-19 and 54-61 have been allowed. Claims 4, 9, 46, and 51 have been objected to, and in response, are amended. Claims 1 and 43 have also been amended and claims 10, 38-42, 52, and 80-84 have been cancelled. Accordingly, Claims 1-2, 4-9, 12-23, 25-37, 43-44, 46-51, 54-65, and 67-79 remain pending in the application.

Information Disclosure Statement

On page 2, item 4 of the above-identified final Office Action, the Examiner states that the IDS filed on 12/4/06 fails to comply with 37 CFR 1.98(a)(2). The Examiner further attaches a copy of Applicants' IDS and crosses out 2 portions, marking them as "not considered."

Applicants respectfully note that there has been some confusion here. The portions marked as "not considered" by the Examiner are not separate references, but are merely continuations of the title and publication information of the sole disclosed reference, which the Examiner does not mark as "not considered." The IDS in question only disclosed one reference, and Applicants provided a copy of that reference. Apparently, the Examiner did receive it, as the first line of the IDS is not crossed out. Accordingly, Applicants respectfully request consideration of the IDS and its one disclosed reference.

Claim Objections

On page 2, item 5 of the above-identified final Office Action, the Examiner objects to the improper dependency of claims 4 and 9 on cancelled claim 3. In response, Applicants offer amendments to correct these informalities. Amendments are offered for claims 4 and 9, and also for their article of manufacture counterparts, 46 and 51, which had similarly depended on cancelled claim 45. These amendments after final

are offered under 37 CFR 1.116(b) to correct informalities pointed out by the Examiner and to reduce issues to address upon appeal.

Claim Rejections – 35 U.S.C. § 103

To establish obviousness under 35 U.S.C. § 103, the Examiner must view the invention as a whole. Further, the Examiner is to perform the obviousness analysis in accordance with the standard set forth by the Supreme Court in *Graham v. John Deere Co*. That standard requires that the Examiner (1) determine the scope and content of the prior art; (2) ascertain the differences between the prior art and the claims in issue; (3) resolve the level of ordinary skill in the art; and (4) evaluate evidence of secondary considerations. 383 U.S. 1, 17-18 (1966); *see also* MPEP 2141. Secondary considerations include whether the invention met with commercial success, whether the invention answered a long felt need, and whether others attempting the invention have failed. *Graham*, 383 U.S. at 17-18. Further, in applying the *Graham* framework, the Examiner must consider the invention as a whole, without the benefit of hindsight. MPEP 2141.

1. In "Claim Rejections – 35 USC § 103," item 7 on page 3 of the above-identified final Office Action, claims 1-2, 10, 43-44, and 52 have been rejected as being unpatentable over U.S. Patent No. 6,209,018 to *Ben-Shachar* (hereinafter "Ben-Shachar") in view of "Applying C++, Patterns, and Components to Develop an IDL Compiler for CORBA AMI Callbacks," *Arulanthu et al.* (hereinafter "Arulanthu") under 35 U.S.C. § 103(a).

The rejections of claims 10 and 52 are obviated by their cancellations.

Amended claim 1 recites a "method of specifying an asynchronous web service within a procedural programming environment, the method comprising:

providing a source code representation of at least a portion of web service logic of a web service to be offered by a server, the logic including at least one method declared to be a callback method;

identifying a member variable declared to implement said callback method to cause a compiler to generate a client proxy object for instantiation on the server for interacting asynchronously with the client using said callback method, and to assign the client proxy object to said member variable; and

specifying one or more declarative annotations associated with said callback method to cause a compiler to generate one or more persistent components for instantiation on the server to maintain conversational state related to the identified member variable."

Thus, when amended claim 1 is viewed as a whole, as required by law, it is directed towards a novel method of specifying an asynchronous web service in a procedural programming environment, the asynchronous web service being offered by a server to clients. In addition to identifying a member variable to implement a callback method and cause a compiler to generate a proxy object for instantiation on the server for interacting asynchronously with the client using the callback method, the invention as claimed in claim 1 teaches the specifying of declarative annotations to cause a compiler to generate persistent components for instantiation on the server to facilitate usage of the asynchronous web service of the server by clients.

In contrast, Ben-Shachar simply teaches a distributed object framework for load-balancing. While Ben-Shachar does teach a service proxy at the client for making function calls to remote servers and does disclose a callback method associated with the service proxy, both proxy and method belong to the client, not the asynchronous web service being specified. Thus, the service proxy is incapable of reading on or suggesting the proxy object of claim 1, and the callback method is incapable of reading on the callback method of claim 1.

Even assuming for the sake of argument that the service proxy does read on or suggest the proxy object of claim 1, Ben-Shachar simply does not teach or suggest a specified member variable which causes a compiler to generate the service proxy. The only compiler disclosed by Ben-Shachar, an IDL compiler, simply generates stub

functions for making calls on remote CORBA objects. Nothing is disclosed about or suggesting such a compiler performing its functions in response to the presence of a member variable. The Examiner even recognizes this on page 4, pointing out that Ben-Shachar does not disclose such a member variable.

Additionally, nothing in Ben-Shachar remotely discloses or suggests specifying declarative annotations to cause a compiler to generate persistent components. Ben-Shachar is focused on the framework in operation and provides very little discussion of its specifying and compilation. In fact, the only such discussion is above-cited discussion of the IDL compiler, which makes no mention of any declarative annotations.

Arulanthu simply does not cure the above-discussed deficiencies. Arulanthu also discusses an IDL compiler capable of compiling client classes for handling asynchronously CORBA callback. Like Ben-Shachar, the proxy object for receiving callback and the callback method are at the client, not the server, and thus cannot be used by the server for interacting asynchronously with the client. Also, nothing in Arulanthu discloses that a member variable causes the compiler of Arulanthu to generate the proxy object of the client. Member variables are disclosed as being used for passing parameters, but this is simply not sufficient to teach or suggest "identifying a member variable declared to implement said callback method to cause a compiler to generate a client proxy object for interacting asynchronously with the client," as is claimed in claim 1.

Further, nothing in Arulanthu teaches or suggests declarative annotations, much less the specifying of such annotations to cause the compiler of Arulanthu to generate one or more persistent components. The only annotations shown in Arulanthu are the comment portions of the various code sections, and none of these annotations are "declarative", that is, capable of causing the compiler to do something, such as generate persistent components.

In the Examiner's "Response to Arguments", page 16 of the above-identified final

Office Action, the Examiner states that "applicant did not claim the callback method at the server." Applicants respectfully disagree. Claim 1 recites "providing a source code representation of at least a portion of web service logic, the logic including at least one method declared to be a callback method." Quite plainly, claim 1 states that the callback method is part of the web service logic. Thus, Applicants do most certainly claim "the callback method at the server."

Also, in the Examiner's "Response to Arguments", page 16 of the above-identified final Office Action, the Examiner states that Arulanthu teaches "annotations [that] are declarative", cites a passage of Arulanthu as proving that point, and equates annotations with variables. Applicants respectfully disagree. The cited passage provided by the Examiner merely teaches "argument declarations." There is nothing in the passage indicating that the declarations are declarative annotations, or even that such declarations "cause a compiler to generate one or more persistent components for instantiation on the server to maintain conversational state related to the identified member variable," as is claimed by claim 1. Further, the Examiner's equating of a variable with an annotation gives those terms a meaning that no one skilled in the art would associate with them. An annotation is always something "in addition to", and in programmatic terms, is often understood as the "comments" in a portion of logic. Variables are not annotations, but are integral specification of the logic. And nothing in Arulanthu indicates that any variables or argument declarations disclosed therein are "annotations."

Accordingly, claim 1 is patentable over Ben-Shachar and Arulanthu, alone or in combination, under 35 U.S.C. §103(a).

Claim 43 recites limitations similar to those of claim 1. Accordingly, for at least the same reasons, claim 43 is patentable over Ben-Shachar and Arulanthu, alone or in combination, under 35 U.S.C. §103(a).

Claims 2 and 44 depend from claims 1 and 43, incorporating their limitations,

respectively. Accordingly, for at least the same reasons, claims 2 and 44 are patentable over Ben-Shachar and Arulanthu, alone or in combination, under 35 U.S.C. §103(a).

2. In "Claim Rejections – 35 USC § 103," item 14 on page 6 of the above-identified final Office Action, claims 20-23, 25-29, 62-65, and 67-71 have been rejected as being unpatentable over Arulanthu in view of Ben-Shachar under 35 U.S.C. § 103(a).

Claims 20 and 62 include limitations similar to those of claims 1 and 43, and thus are patentable for at least the same reasons. Accordingly, claims 20 and 62 are patentable over Arulanthu and Ben-Shachar, alone or in combination, under §103(a).

Claims 21-23, 25-29, 63-65, and 67-71 depend from claims 20 and 62, respectively, incorporating their limitations. Consequently, claims 21-23, 25-29, 63-65, and 67-71 are patentable over Arulanthu and Ben-Shachar, alone or in combination, under §103(a).

3. In "Claim Rejections – 35 USC § 103," item 26 on page 8 of the above-identified final Office Action, claims 38-42 and 80-84 have been rejected as being unpatentable over U.S. Patent No. 6,253,252 to *Schofield* (hereinafter "Schofield") in view of U.S. Patent Publication No. 2002/0099738 to *Grant* (hereinafter "Grant") under 35 U.S.C. § 103(a).

The rejections of claims 38-42 and 80-84 are obviated by their cancellations.

4. In "Claim Rejections – 35 USC § 103," item 34 on page 10 of the above-identified final Office Action, claims 30-32, 35-36, 72-74, and 77-78 have been rejected as being unpatentable over Schofield in view of Ben-Shachar under 35 U.S.C. § 103(a).

Claim 30 recites, in "a server offering a web service, a method comprising:

<u>generating by the server a request to another external web service using a proxy object previously generated by a compiler based upon a service</u>

description file associated with the external web service, wherein the request includes a callback address to identify a location to which the external web service should return a response;

transmitting by the server the request as a request message to the external web service using one or more transmission protocols; and

receiving by the server an asynchronous response from the external web service."

Thus, when Claim 30 is viewed as a whole, as required by law, it is directed towards a novel method of generating requests to an external web service by a proxy object of a server having a web service, the proxy object previously generated by a compiler based on a service description file associated with the external web server.

In contrast, Schofield fails to teach or suggest a proxy object previously generated based on a service description file of an external web server. Schofield teaches a response function of a server application that may be associated with a callback identifier to receive asynchronous responses from an external web server. In embodiments where the server application method calls another asynchronous service to fulfill the request, the server application may include a response function to receive callback from the other asynchronous service, and may associate the response function with a callback identifier to enable the server application to continue operations while waiting for the asynchronous response.

Even if one assumes for the sake of argument that Schofield might suggest some sort of proxy object to listen for asynchronous responses, nothing suggests that such an object need be generated based on a service description file of the external web server. Schofield does not even mention such service description files or contemplate their use as a basis for a proxy object. Further, Schofield explicitly teaches that the server application generates the requests to the external asynchronous web server, thus teaching away from a proxy object making such a request.

Ben-Shachar simply does not cure this deficiency. As discussed above, the server in Ben-Shachar does not even have a proxy object, much less a proxy object generated from a service description file of an external web service.

In a previous Office Action, the Examiner attempted to equate the compiled CORBA IDL, which is linked to the client and server, to the service description file. The IDL, however, only affects client and server communication. As claimed in claim 30, the communication occurs between a server and an external service. Schofield does teach a server and an external server, but no proxy object of the server, much less a proxy object generated based on a service description file of the external web service. Because the IDL of Schofield does not result in the generation of a proxy object for communicating with an external web service, the IDL is incapable of reading on the service description file.

In the Examiner's "Response to Arguments", page 17 of the above-identified final Office Action, the Examiner states that "applicant did not exactly claim proxy object generated based on a service description file of the external web server." Fair enough. But Applicants did and do claim a proxy object generated based on a service description file associated with an external web server. This difference in semantics makes absolutely no difference in the above arguments. Neither Schofield nor Ben-Shachar teach or suggest a proxy object generated based on a service description file associated with an external web server. No such service description file is disclosed by either reference.

Accordingly, claim 30 is patentable over Schofield and Ben-Shachar, alone or in combination, under 35 U.S.C. §103(a).

Claim 72 recites limitations similar to those of claim 30. Accordingly, for at least the same reasons, claim 72 is patentable over Schofield and Ben-Shachar, alone or in combination, under 35 U.S.C. §103(a).

Claims 31-32, 35-36, 73-74, and 77-78 depend from claims 30 and 72, incorporating their limitations, respectively. Accordingly, for at least the same reasons, claims 31-32, 35-36, 73-74, and 77-78 are patentable over Schofield and Ben-Shachar, alone or in combination, under 35 U.S.C. §103(a).

5. In "Claim Rejections – 35 USC § 103," item 43 on page 12 of the above-identified final Office Action, claims 33-34, 37, 75-76, and 79 have been rejected as being unpatentable over Schofield in view of Ben-Shachar and further in view of Grant under 35 U.S.C. § 103(a).

Grant does not cure the deficiencies of Schofield and Ben-Shachar. Thus, claims 30 and 72 remain patentable even when Schofield, Ben-Shachar, and Grant are combined.

Claims 33-34, 37, 75-76, and 79 depend from claims 30 and 72, respectively, incorporating their limitations. Consequently, claims 33-34, 37, 75-76, and 79 are patentable over Schofield, Ben-Shachar, and Grant, alone or in combination, under §103(a).

Allowable Subject Matter

Applicants thank the Examiner for allowing claims 12-19 and 54-61.

Applicants further thank the Examiner for finding claims 4-9 allowable but for their dependence on a rejected base claim. For the reasons given above, Applicants now believe that both that base claim and its rejected base claims are allowable.

Conclusion

In view of the foregoing, reconsideration and allowance of rejected claims 1-2, 4-9, 20-23, 25-37, 43-44, 46-51, 62-65, and 67-79 are solicited. Applicant thanks the Examiner for allowance of claims 12-19 and 54-61, and submits that all pending claims are in condition for allowance. Accordingly, a Notice of Allowance is respectfully

requested. If the Examiner has any questions concerning the present paper, the Examiner is kindly requested to contact the undersigned at (206) 407-1513. If any fees are due in connection with filing this paper, the Commissioner is authorized to charge the Deposit Account of Schwabe, Williamson and Wyatt, P.C., No. 50-0393.

Respectfully submitted,
SCHWABE, WILLIAMSON & WYATT, P.C.

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